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09/814,125	03/22/2001	Yoshinori Iketaki	2001_0327A	2053

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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/814,125

Applicant(s)

IKETAKI ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on March 13 and 28, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 74-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 74-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

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**DETAILED ACTION*****Remark***

- This Office Action is in response to applicant's amendments filed on March 13 and March 28, 2003, which have been entered as paper numbers 9 and 11.
- By these amendments, the applicant has canceled claims 1-73 and had newly submitted claims 74-80.
- Claims 74-80 remain pending in this application.

***Response to Amendment***

1. The amendment filed on March 13, 2003 is objected to under 35 U.S.C. 132 because it introduces **new matter** into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the *newly submitted claim 74* recites the phrase "a spatial filter ... including a condenser lens, a collimate lens and a pinhole ... to suppress wavefront disturbance of the erase light *for producing* a first-order Bessel beam from the erase light" and the *newly submitted claim 75* recites the phrase "the first-order Bessel beam *produced* by the spatial filter" are not supported by the specification. The specification **only** gives the support for creating a first-order Bessel beam of the *erase beam emerged from* the spatial filter by using *a phase plate that introduces a phase difference of  $\pi$  for two symmetrical points with respect to the optical axis of the erase beam*, (please see Figures 13 and 18). As shown in Figures 13 and 18 the phase plate (1514 or 2104) is used to create first order Bessel beam from the light beam **emerged out** of the spatial filter. The spatial filter having the condenser lens, pinhole and the collimating lens **will not be able** to produce a first order Bessel beam from the erase beam, (please see page 33 line 24 to page 34 line 23).

Applicant is required to cancel the new matter in the reply to this Office Action.

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*Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 74-80 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection based on *the newly added matters* are set forth in the paragraph above. Claims 75-80 inherit the rejection from their based claim.

4. **Claims 74-80 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to *enable* one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and the claims fail to teach how could a spatial filter having a condenser lens, a pinhole and a collimate lens is capable of “suppressing wavefront disturbance of the erase light for producing a first-order Bessel beam from the erase light” as recited in newly added claim 74. Claims 75-80 inherit the rejection from their based claim.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iketaki et al (PN. 5,835,262) in view of the patent issued to Fairley et al (PN. 5,783,814).**

Iketaki et al teaches a multi-wavelength optical *microscope* that is comprised of a *laser light source* (3) for generating a *pump laser light beam* of wavelength  $\lambda_1$  and a *laser light source* (7) for generating an *erase laser light beam* of wavelength  $\lambda_2$  to illuminate a *sample* (14), (please see Figure 1). Iketaki et al teaches that the pump light is capable of exciting a sample molecule from a *ground state* to a *first excitation state* and the erase light beam is capable of exciting the sample molecule from the *first excitation state* to a *second (higher) excitation state*, (please see Figure 6 and column 6). Iketaki et al teaches that a *half mirror* (11) is used as the *overlap component* for combining and making the irradiation areas on the sample of the two beams overlap with each other. The absorption and deexcitation process will form light-emitting images. This arrangement will have *double resonance absorption* since the deexcitation between the second excitation state to the first excitation state and the deexcitation between the first excitation state and the ground state will give two absorption peaks.

Iketaki et al teaches that a telescope lens and a condenser lens (12 and 13) are used to propagating the illuminating light beam to the sample. However it does not teach explicitly that a spatial filter having a condenser lens, a collimate lens and a pinhole is used to transfer the light beam. But a spatial filter having the above-mentioned combination is well known in the art. As demonstrated by the teachings of a *microscope* by Fairley et al wherein a *spatial filter* having a *converging lens* (130, Figure 2B), a *pinhole*

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(131) and a *collimator lens* (132) is used in the illumination beam path to filter out unwanted, scattered light to confine the illumination beam in a desired optical path, (please see Figure 2B). It would then have been obvious to one skilled in the art to apply the teachings of Fairley et al to modify the microscope of Iketaki et al for the benefit of providing spatial filtering to the light beam so that unwanted light beam can be blocked out from reaching the sample to improve the observation through the microscope.

These references do not teach explicitly that the spatial filter produces first order Bessel beam from the erase beam. However the cited spatial filter in the above references has the *same structure* as the spatial filter claimed, such functional result is therefore implicitly included if the production of first order Bessel beam is the direct result of the spatial filter.

#### *Allowable Subject Matter*

7. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered, none has disclosed a double resonance absorption microscope having the properties as claimed with a spatial filter having the claimed structure and a *phase modulation element* that imparts the erase light beam with a *phase difference of  $\pi$  around an optical axis* of the erase light as the optical axis being a center.

#### *Response to Arguments*

8. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. The newly submitted claims have been fully considered and they are rejected for the reasons stated above.

#### *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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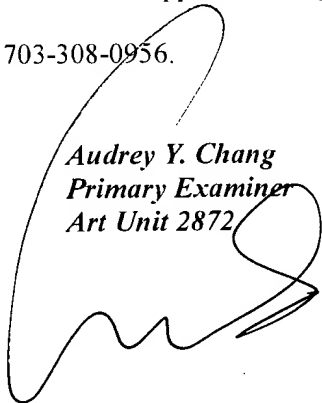
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Audrey Y. Chang*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.  
May 21, 2003